Z′ is selected from the group consisting of:

(i) hydroxyl, amino, carbamido, carbamyl, carbamyloxy, and halogen;

(ii) C_1-C_4 alkyl, C_1-C_4 alkenyl, C_3-C_7 cycloalkenyl and C_1-C_3 alkoxy which may be additionally substituted with at least one R^{11} as defined above;

Y and Y′ are independently selected from the group consisting of:

(i) halogen, C_1-C_4 haloalkyl, and C_1-C_4 haloalkoxy;

(ii) carbamyl, carbamido, cyano, keto, vinyl, sulfoxide, nitro, C_1-C_3 alkylsulfonyl, and sulfone; and

(iii) C_1-C_3 alkyl which may be additionally substituted with at least one R^{11} as defined above; and

(iv) an oligopeptide of 1 to 3 amino acids or a peptidomimetic;

and pharmaceutically acceptable salts thereof; with the proviso that when X-R_1 is a fluorinated keto acyl, Z is hydrogen.

REMARKS

Claims 1-16 are pending in the application. Claims 1-7 and 9-11 are withdrawn from consideration. Claims 8 and 12-16 stand rejected. Applicants have amended Claims 8, and 13-16. Applicant has added new Claim 17.

35 U.S.C. §112, FIRST PARAGRAPH REJECTION OF CLAIMS 13-16

The Examiner has rejected Claims 13-16 on the grounds that they lack the proviso "when X-R_1 is a fluorinated keto acyl group, Z must be hydrogen." The Examiner pointed out that the specification made this proviso. Claims 13-16 have now been amended to recite this language, and it is respectfully submitted that such amendments are sufficient to obviate the Examiner's rejection.

35 U.S.C. §112, FIRST PARAGRAPH REJECTION OF CLAIMS 8 AND 13-16

The Examiner has rejected Claims 8 and 13-16 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as

the invention. In Claim 8, X is stated to possibly be (C=O)-N. The connectivity meant in this notation is that the carbon in the aromatic ring is bonded to the nitrogen, which is in turn bonded to the carbon of the carbonyl group. Implied is that the third bond is hydrogen, which is now made explicit in the amended Claim 8.

The Examiner has further noted that in original Claim 8, Z is not permitted to be a hydrogen, even though it is further stated in the claim that when $X\text{-}R_1$ is a fluorinated keto acyl group, Z must be hydrogen. This forms a contradiction, and amended Claim 8 now obviates that contradiction by adding hydrogen to the possibilities for Z. Specific chemical substituents have been added to Claim 8, support for which is found in the originally filed specification and claims.

The Examiner has noted that Claims 13-16 are dependent on a non-elected claim and recommends that they be written in independent form. Claims 13-16 have been amended to independent form. The Examiner stated that Claims 13-16 permit $X\text{-}R_1$ to be trifluoromethyloxo, but no requirement is made on Z to be hydrogen, as it is in Claim 8. Claims 13-16 have been amended to be internally consistent.

Applicants have added new Claim 17, the contents of which were defined by the Examiner as belonging to Group 34 and elected by the Applicant.

Applicants appreciate the Examiner's efforts in informing Applicants of inadvertant typographical and grammatical errors, all of which have been corrected in the amended Claims 13-16. It is believed that all of the Examiner's requests to bring the application in order under §112 have been properly addressed and Applicants request favorable action.

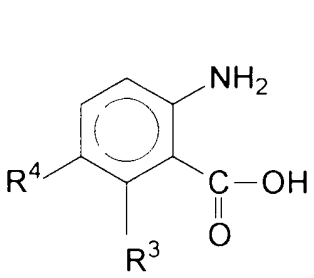
35 U.S.C. §102(b) AND §103(b) REJECTION OF CLAIMS 8 AND 12

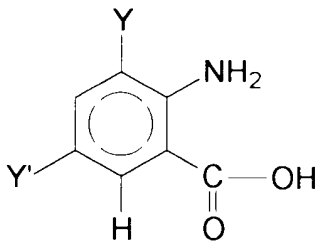
The Examiner rejected Claim 8 as being anticipated by Berger, et al. (U.S. Patent 3,657,436) and Claims 8 and 12 as being anticipated by or obvious over Yamamoto, et al. (U.S. Patent 5,356,620). Applicants respectfully traverse these rejections.

Berger, et al. U.S. Patent 3,657,436

Claim 8, drawn to a method of use for a recited composition, is not anticipated by the method disclosed in Berger, et al. In addition, Berger does not disclose a composition which reads on the composition recited in Applicants' method of use claim. In '436 the substituent group at carbon 6 (the carbon directly adjacent to the carbon possessing the NRR^1 group) is always a hydrogen. The corresponding carbon on the formula in the present application, denoted as Y or Y', is never hydrogen in the newly amended claims. For this reason, the composition described in '436 is not identical to the composition recited in amended Claim 8. Therefore, Berger cannot anticipate Applicants' invention.

Not only are the compositions of '436 and '620 different from the compositions recited by Applicants, but the uses of the compositions disclosed in '436 and '620 do not render Applicants' claimed invention either anticipated or obvious. Below please find two compounds, one from Berger and the other from Applicants' disclosure. Substituent groups on each were chosen to produce the most similar compounds. Clearly there are distinguishable differences between these compounds, even when construed as similarly as possible. The position on Berger et al.'s compound denoted R^4 can be a halogen or lower alkoxy, because the R^3 position has been chosen as hydrogen. In contrast, the compound of the present invention can include the groups found at Claim 8, beginning at line 50 at either Y or Y'. Claim 8 does not permit Y nor Y' to be hydrogen, as required by Berger. It can be appreciated that Berger does not permit his compound to encompass the number of combinations possible with Applicants' compound. Further, Berger contains no suggestion that compounds which contain something other than H at the position para to R^4 would have antiviral activity. In fact, Berger only suggested activity of a particular compound, with few possible variations, against one particular virus. For these reasons, Applicants submit that the method of the present invention is novel and non-obvious over prior art presented by Berger, et al.

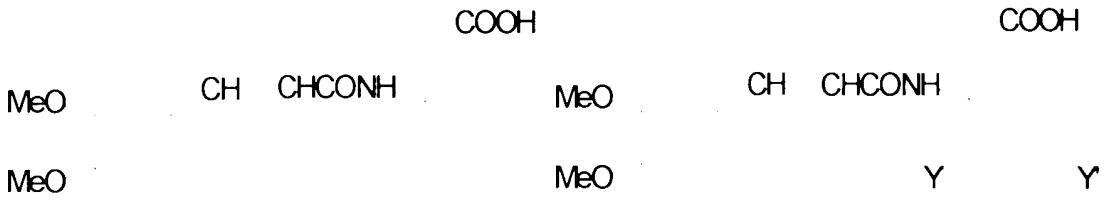




Berger, et al.'s compound Applicants' compound

Yamamoto, et al. U.S. Patent 5,356,620

The Examiner has rejected Claims 8 and 12 as being anticipated by or obvious over Yamamoto, et al. (U.S. Patent 5,356,620). In addition, the composition recited in the pending and amended Claim 8 is not identical to the composition disclosed in Yamamoto, et al. Using the same formulation assignments as the Examiner in the Official Action, (where X = -CO-; R^1 = OH; Z = NHR^{11}; R^{11} = C2-alkenyl substituted with dimethylphenyl), positions corresponding to the present invention's Y and Y′ on the Yamamoto compound must always be hydrogen. In newly amended Claim 8, Y and Y′ cannot be hydrogen. Therefore, since amended Claim 8 defines Y and Y′ as not being hydrogen, Applicants submit that the pending claims to methods of treatment are not anticipated by U.S. Patents '436 nor '620. Below please find two compounds, one from Yamamoto and the other from Applicants' disclosure. Substituent groups on each were chosen to produce the most similar compounds. Clearly there are distinguishable differences between these compounds, even when construed as similarly as possible. The position on Yamamoto et al.'s compound which corresponds to Applicants' Y and Y′ is always hydrogen. In contrast, the compound used in the method is not hydrogen; rather, it is one of the more complex groups found at Claim 8, beginning at line 50 at either Y or Y′. The number of combinations possible with Applicants' recited compound is much greater than taught by Yamamoto.



Yamamoto, et al.'s compound Applicants' compound

Further, Yamamoto, et al. disclosed a compound to treat the symptoms of allergic rhinitis and allergic conjunctivitis. Allergic rhinitis (hay fever) and allergic conjunctivitis (red, itchy, burning eyes) are the result of allergies to environmental elements. Neither allergic condition is caused by a picornaviral infection. In contrast, rhinoviral infections cause the "common cold" in which only the **symptoms** experienced are similar to allergic conditions. It was never suggested in '620 that a compound which treats allergic reactions could also decrease the viral load of a picornaviral infection. Yamamoto does not disclose that its compound is useful for treating rhinoviral infections. Applicants therefore submit that the pending claims are not anticipated by Yamamoto, et al., and request favorable action on the same.

In view of the fact that Yamamoto teaches the use of a different compound for treating allergic rhinitis, and contains no suggestion that modifying the disclosed structure would produce a compound suitable for treating any conditions, let alone one caused by a picornavirus, Applicants respectfully submit that Yamamoto neither anticipates nor renders Claims 8 and 12 obvious, and favorable action is requested on the same.

ELECTION REQUIREMENT CLARIFICATION

To summarize, the Examiner defined group 34 as follows:

X is one of –C=O-, -S=O-, -C=S-

R_1 is a hydrocarbon chain which may be unsubstituted or substituted with at least one R^{11}, wherein R^{11} is selected from the group consisting of:

(ia) C_1-C_4 alkyl, C_2-C_4 alkenyl, C_3-C_8 cycloalkyl, C_6-C_{10} bicycloalkyl or aryl which may be substituted or unsubstituted;

(ib) halogen, cyano, nitro, amino, hydroxy, adamantyl, carbamyl, carbamyloxy or keto;

(ic) an oligopeptide of 1-3 amino acid residues; and

(id) $NR^{13}R^{14}$, COR^{13}, $O(C{=}OR^{13})$, SO_2R^{14}, SOR^{14}, $(C{=}O)NR^{13}R^{14}$, or $NR^{14}(C{=}O)R^{13}$;

wherein:

R^{13} is selected from the group consisting of hydrogen, phenyl, benzyl, C_1-C_6 alkyl, and C_3-C_6 alkoxyalkyl; and

R^{14} is selected from the group consisting of hydrogen, hydroxyl, C_1-C_4 alkyl and benzyl;

R_3 is selected from the group consisting of phenyl, hydroxyl, C_1-C_{12} hydrocarbon chain or O-C_1-C_{12} hydrocarbon chain which may be additionally substituted with at least one R^{11} as defined above, an oligopeptide of 1 to 3 amino acids, an oligopeptide of 1 to 3 amino acids joined to the backbone by an oxygen, or a peptidomimetic;

Z is selected from the group consisting of hydrogen, hydroxyl, sulfhydryl, amino, carboxyl, and NHR^{11}, wherein R^{11} is defined as above.

Z′ is selected from the group consisting of hydroxyl, amino, carbamido, carbamyl, carbamyloxy, halogen, C_1-C_4 alkyl, C_1-C_4 alkenyl, C_3-C_7 cycloalkenyl or C_1-C_3 alkoxy which may be additionally substituted with at least one R^{11} as defined above;

Y and Y′ are independently selected from the group consisting of halogen, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, carbamyl, carbamido, cyano, keto, vinyl, sulfoxide, nitro, C_1-C_3 alkylsulfonyl, sulfone, C_1-C_3 alkyl which may be additionally substituted with at least one R^{11} as defined above; or an oligopeptide of 1 to 3 amino acids or a peptidomimetic.

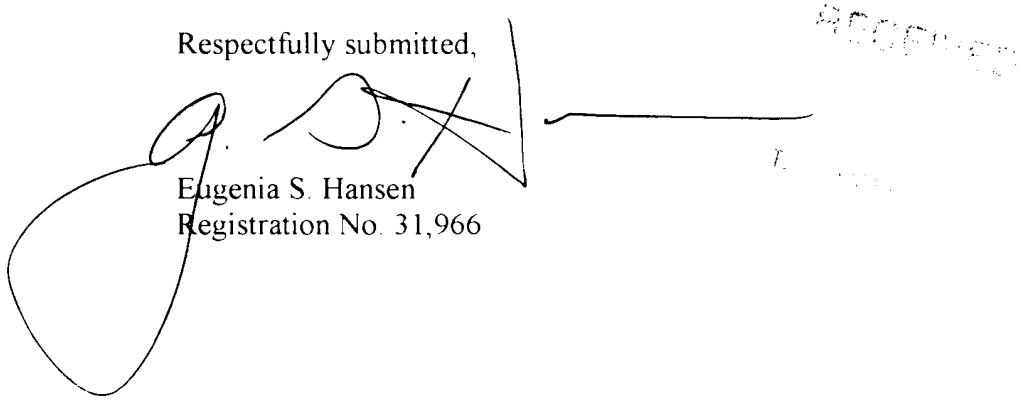
Applicants request clarification of the restriction if the above criteria are not correct according to the Examiner. The Examiner stipulated that the compounds which satisfy the criteria above are novel. The content of the elected specie forms the basis for new Claim 17. The art rejections cited by the Examiner are drawn to non-elected species.

CONCLUSION

For reasons delineated above, Applicants respectfully request the consideration of all pending claims, and favorable action on the same.

Applicants authorize withdrawal from the Sidley & Austin Deposit Account No. 18-1260 in the amount of $55.00 for a one month extension of time and believe no further fees are due at this time. However, in the event there is a required fee, please charge the required fee to the Sidley & Austin Deposit Account No. 18-1260.

Respectfully submitted,



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